

THE LARVA OF *PLATYSTETHUS SPICULUS* ERICHSON
(COLEOPTERA: STAPHYLINIDAE)
AND ITS OCCURRENCE IN BOVINE FECES
IN IRRIGATED PASTURES*

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Platystethus is a relatively small genus (35 described species) with only two species being known to be indigenous to the United States. The Nearctic species were reviewed by Moore and Legner (1971). The larva of one of these, *P. americanus* Erichson, was described and illustrated by Paulian (1941). The larvae of the other species, *P. spiculus* Erichson, is described here. It goes to *Platystethus* in Paulian's (1941) key to the genera of the larvae of the Staphylinoidea. Several larvae were taken by Berlese extraction as previously described (Legner et al., 1975) in company with many adults of *P. spiculus* in bovine manure that, at the time, contained no other staphylinids. Ten to 25 1 L samples were taken at random from bovine feces deposited in green and dry irrigated pastures at 3 sites near Calexico, California between 9 AM and 11 AM over several sample dates from October 22, 1974 to April 22, 1975. Two age groups of manure were distinguished: 12 hr and 24-48 hr old.

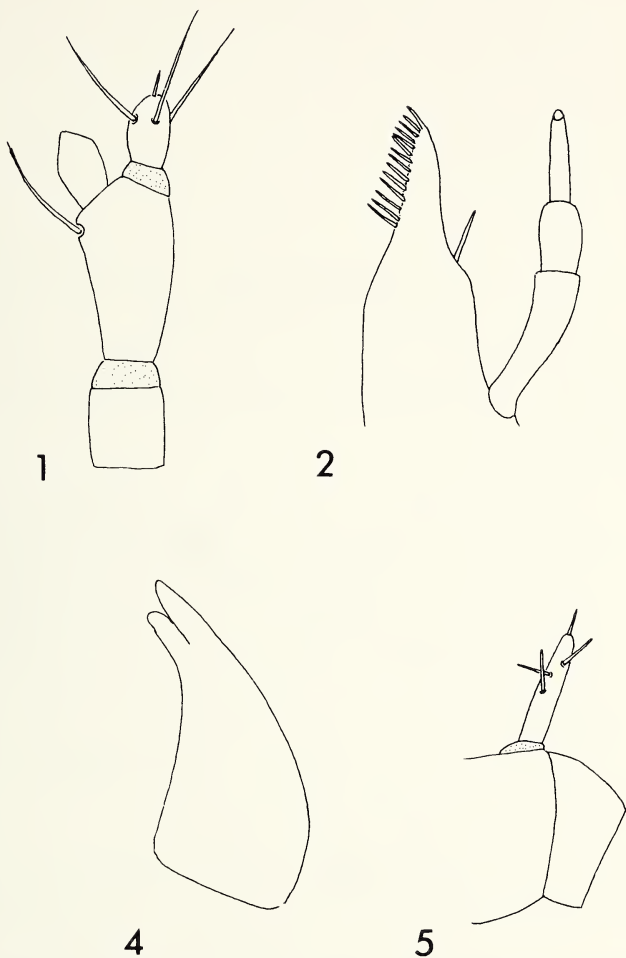
KEY TO THE LARVAE OF THE SPECIES OF *PLATYSTETHUS*
INDIGENOUS TO THE UNITED STATES

1. Acorn-like seta at apex of second antennal segment equal in size to third antennal segment *spiculus* Erichson
Acorn-like seta at apex of second antennal segment only half as long as third antennal segment *americanus* Erichson

Larva of *Platystethus spiculus* Erichson

Length 3.8 mm. Body elongate, pale, integuments mostly transparent with the head and mouthparts tinged with brown, the man-

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Figures 1-5. Larva of *Platystethus spiculus*. Fig. 1, antenna; Fig. 2, maxilla; Fig. 3, labial palpus; Fig. 4, right mandible, dorsal view; Fig. 5, pseudopod and urogomphus.

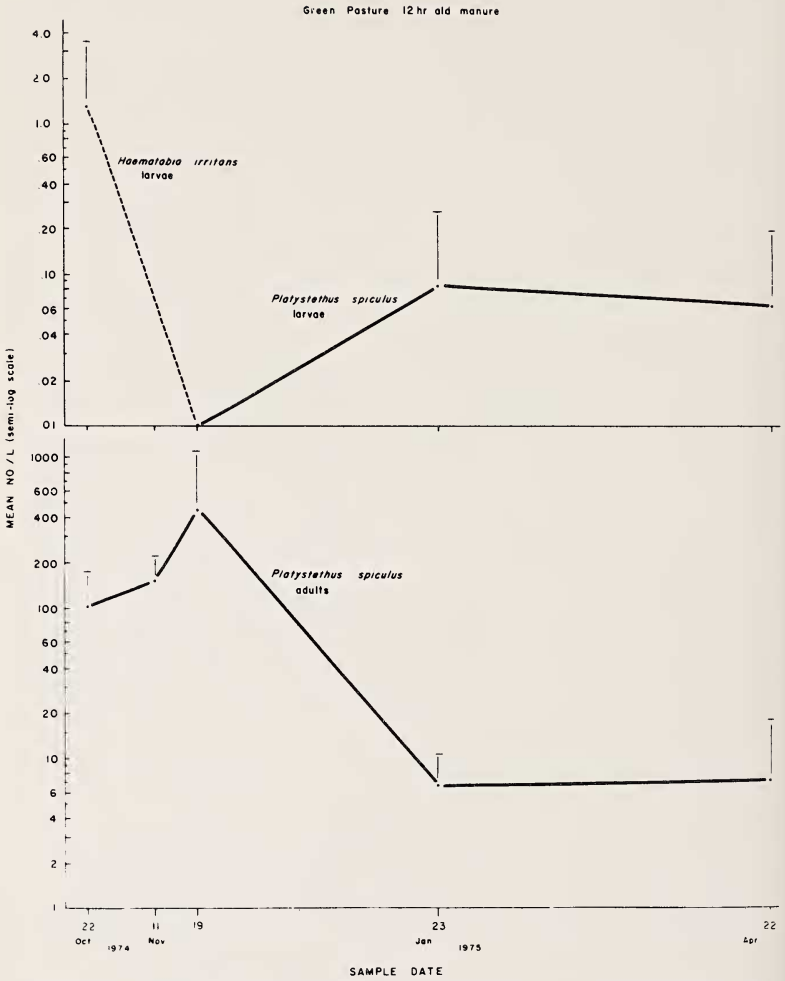


Figure 6. Average density of *Platystethus spiculus* and *Haematobia irritans* larva, in 12-hr-old bovine feces from green, irrigated pastures; Calexico, California, 1975 (+1 05 Conf. limit shown above each mean).

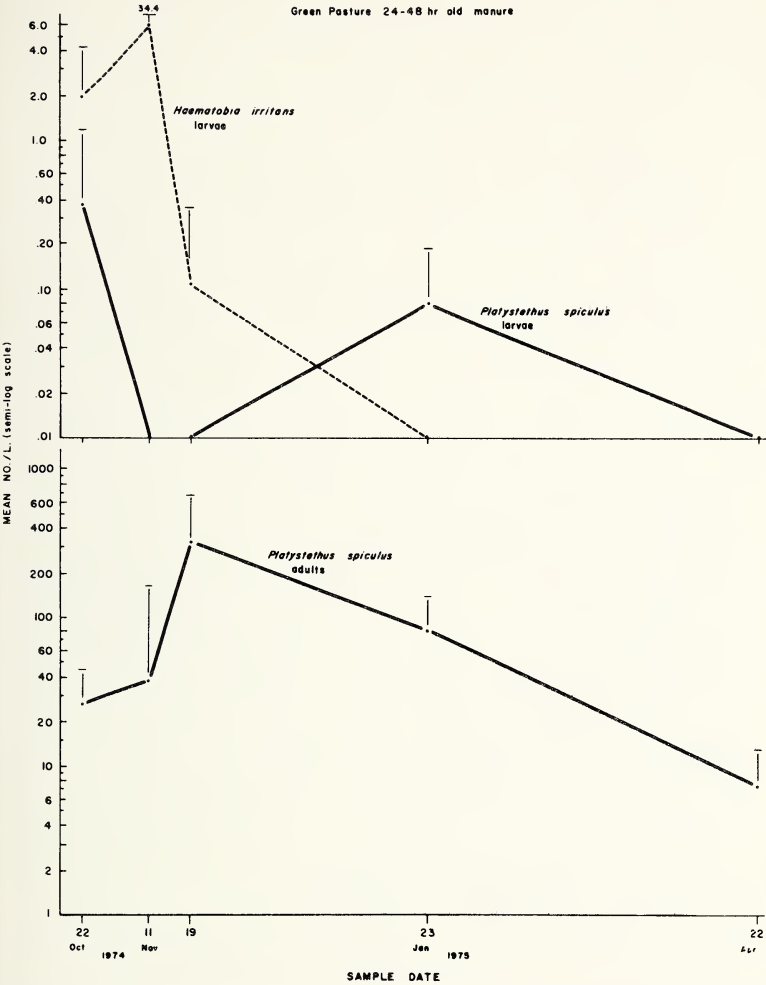


Figure 7. Average density of *Platystethus spiculus* and *Haematobia irritans* larvae, in 24-48-hr-old bovine feces from green, irrigated pastures; Calexico, California, 1975 (+1 05 Conf. limit shown above each mean).

dibles darkest. Head oval, about one-fourth wider than long, with a single ocellus very near outer apical angle of the head at the base of mandible. Labrum simple, a little wider than long. Antennal fossa located near the outer, apical angle of the head at the base of the mandible. Antenna three-segmented; first segment about as wide as long; second segment about one-fourth wider than first and twice as long, widest near apical fourth, with a large acorn-like seta at obliquely truncate component of apex, about as long as third segment; third segment less than one-third as long as second segment and a little more than one-third as wide. Mandibles stout at base, arcuate, with two teeth at apex in dorsal view. Maxillary palpus three-segmented; first segment longest, about three times as long as wide; second segment about as wide as first and almost half as long; third segment a little longer than second but only about half as wide, apex pointed. Lacinia gradually, irregularly narrowed to apex, with a series of stout setae internally in apical half and a single large seta in the middle on the outer edge. Labial palpus two-segmented, segments of about equal length, first segment wider than second. Pronotum about as wide as head but a little shorter, with two setae at anterior margin and two in each lateral series. Mesonotum and metanotum each about as wide as pronotum but a little shorter, each with four transversely arranged discal setae and with one large seta and two small setae in the lateral series. Abdomen with nine segments, first segment about as wide as metanotum but not quite as long, segments progressively slightly increasing in width and length through eighth which is slightly wider and about as long as metanotum; each with four setae along the posterior margin and three in the lateral series. Pseudopod short and stout. Urogomphus one-segmented, cylindrical, about four times as long as wide, tapered to apex.

Five specimens taken from field-manure in company with adults at Calxico, Imperial county, California, 21 October 1974, E. F. Legner collector.

This species is similar to Paulian's (1941) description and illustration of *P. americanus*, except that the acorn-like seta at the apex of the second antennal segment is as large as the third antennal segment whereas in *P. americanus* it is only half as long.

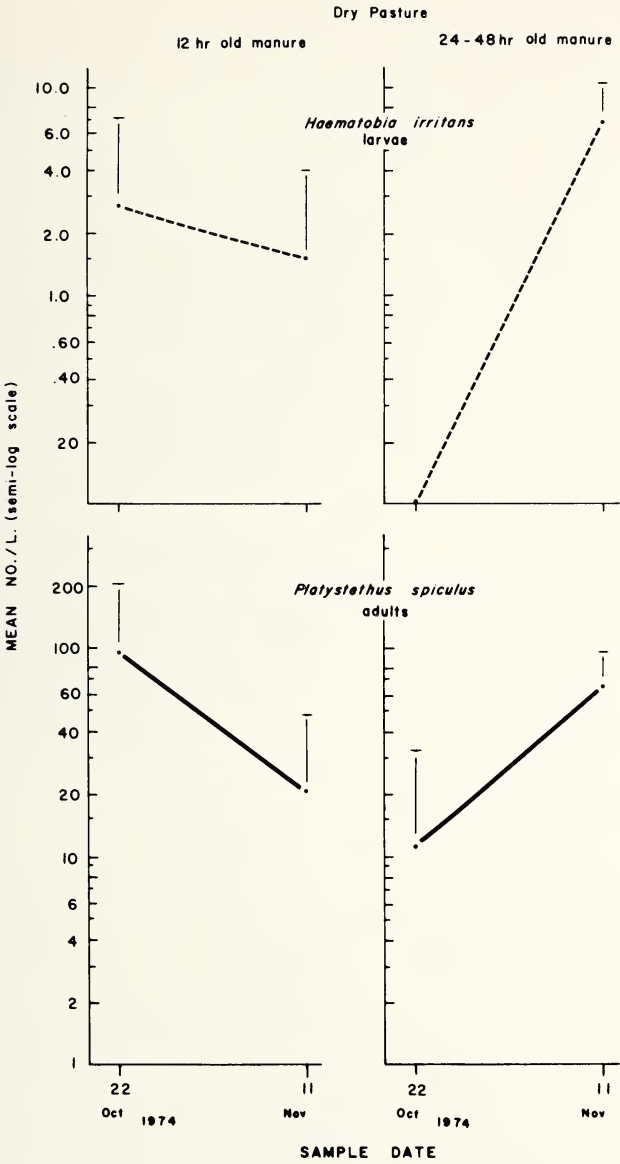


Figure 8. Average density of *Platystethus spiculus* and *Haematobia irritans* larvae, in 12- and 24-48-hr-old bovine feces from dry pastures; Calexico, California (+¹ 05 Conf. limit shown above each mean).

FIELD OCCURRENCE

Larvae of the horn fly, *Haematobia irritans* Linnaeus, occurred in bovine feces in pastures in association with adults and larvae of *Platystethus spiculus*.

There was no continuous coincidence of *P. spiculus* larvae and adults with *H. irritans* larvae (Figs. 6-8). Therefore, alternative food would have been necessary to sustain *P. spiculus* during period of *H. irritans* scarcity or absence.

The occurrence of *P. spiculus* larvae was exceptionally low in the manure habitat, certainly not sufficiently dense to account for the comparative high adult abundance (Figs. 6 & 7), and no larvae were detected in dry pastures (Fig. 8).

It appears that *P. spiculus* adults are initially attracted to fresh bovine feces in green pastures where some eggs are laid (Fig. 6). Attraction to dry pastures is not as great, and apparently no eggs are laid judging from the absence of larvae (Fig. 8). The adult density is maintained for at least 24 hrs (Fig. 7). The majority of the larvae of this species may occur subterraneously below and surrounding the bovine fecal droppings.

Hinton (1944) has shown that in the European *P. arenarius* (Fourcroy) larvae and adults feed on manure and are facultative feeders on carrion; that eggs are laid in a brood chamber in or partly beneath manure and protected by the female until hatched. Whether similar sub-social behavior exists with the American species has not been determined.

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1941. Les premier états des Staphylinidae. Étude de Morphologie Comparée. Mém. Mus. Nat. Paris, n. ser., **15**: 1-361; 1365 Fig., 3 L.